WESTERN DAKOTA TECH

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February 2019

Nick Wendell
South Dakota Board of Technical Education
800 Governors Drive
Pierre, SD 57501-2291

Dear Nick:

Please accept this letter as notification that Western Dakota Tech is modifying its offerings for the Fall 2019 semester. We will begin offering two blended AAS programs, comprised of courses from existing programs. These changes were developed from meetings with industry representatives over the course of the last year. The new blended programs will be:

- Diesel Technology - Industrial Maintenance
    - Associate of Applied Science blended program option from Diesel Technology, Electrical Trades, Precision Machining, and Welding & Fabrication
- Environmental Engineering Technician – Aquaponics
    - Associate of Applied Science blended program option from Environmental Engineering Technician and Electrical Trades

These changes will help WDT to better serve students and local industry needs. The attached documents fully describes the background and rationale for these new blended programs.

The CIP code for Diesel Technology – Industrial Maintenance will be 47.0303.

The CIP code for Environmental Engineering – Aquaponics will be 01.0308.

Please let me know if you have questions.

Respectfully,

Dr. Bolman
President

WESTERN DAKOTA TECH

Environmental Engineering Technician – Aquaponics

Presented to the SD Board of Technical Education February 2019

For Implementation Fall 2019

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Environmental Engineering Technician - Aquaponics

EXECUTIVE SUMMARY

The Electrical Trades Program at Western Dakota Tech is a proven leader in Aquaponics technology based on their national award-winning project in May 2018 for the National Science Foundation's Innovation Challenge. Based on this national award, the Electrical Trades program has teamed up with the Environmental Engineering Technician program to enhance this educational opportunity even further. Since May 2018, more than 20 industry leaders in aquaculture have contacted these two programs across the country including South Dakota aquaculture facilities Prairie AquaTech and Tru Shrimp. Additionally, the current Program Directors have been awarded a Sustainable Agriculture Research and Education grant from the USDA to further aquaponics research. WDT would like to carry this educational opportunity even further and become the leader in aquaponics education, providing students with knowledge and skills in a quickly emerging agricultural industry.

IDENTIFICATION AND DESCRIPTION OF THE PROGRAM

Western Dakota Tech requests approval to offer a blended program for an Associate of Applied Science degree in Environmental Engineering Technician – Aquaponics. This blended program will offer courses from two already established and successful programs (Environmental Engineering Technician and Electrical Trades) to create a combined degree option with the addition of four new courses in Aquaponics.

This blended program will be comprised of educational components including: environmental sciences, agriculture industry, agronomy, water quality, wastewater management, horticulture, aquaculture, programmable logic controllers, and industrial data communication.

Graduates of this program will have opportunities for career choices including:

- Aquaponics Production Manager
- Commercial Greenhouse Manager or Technician
- Aquaculture Manager or Technician
- Controlled Agricultural Environmental Technician
- Fisheries Technician
- Aquatic System Designer
- Aquaponics Greenhouse Technician
- Hydroponics Manager or Technician
- Environmental Engineering Technician

Students will work and study in a learning environment that will focus on problems, critical questions, and real-world case studies forming the basis for a comprehensive understanding of aquaponics. This blended degree option is a 21-month or four-semester curriculum with 70 credits.

OBJECTIVES AND PURPOSE OF THE PROGRAM

The primary objective of this blended program is to prepare students with the necessary knowledge, skills, and behaviors to be successful in the emerging field of sustainable urban agriculture. This will be met by providing a solid curriculum that includes classroom and real-world experience.

This objective will be met by providing an educational background that prepares graduates to be employed immediately upon completion of this blended degree program.

Upon completion, graduates will have basic skills in:

- Basic environmental sciences, field methods and wastewater technologies
- Installation and maintenance of programmable controller systems in an industrial environment
- Basic principles of the development and management of crops
- Developing a resource use plan
- Strategies for plant nutrient management
- Production techniques
- Technologies incorporated for solving problems
- Implementing an appropriate record keeping system

METHODS OF OBTAINING THE OBJECTIVES OF THE PROGRAM

Upon receipt of the South Dakota Board of Technical Education approval, Western Dakota Tech will begin developing marketing and recruitment strategies to fill the initial Fall 2019 cohort of 24 students. A marketing campaign to recruit students will include a comprehensive media mix. Western Dakota Tech will provide faculty resources to develop curriculum, develop course schedules, and establish an advisory board.

Industry is supportive of this program and will be instrumental in the initial development phase as well as its continued success. The letters of support acknowledge the industry's commitment of ongoing support.

Western Dakota Tech provides assurance that it possesses the resources and staff necessary to:

- Develop marketing materials and recruit students
- Recruit and retain qualified staff and instructors
- Develop and administer budgets
- Make available textbooks and instructional resources
- Provide career counseling to students
- Evaluate programs and staff
- Assist students with job placement
- Provide services to non-traditional students
- Provide classrooms, equipment, and supplies

DESCRIPTION OF LABOR MARKET DEMAND OF THE UNITED STATES, SOUTH DAKOTA, STUDENT NEEDS AND INDUSTRY SUPPORT

National Data

Currently, the National Bureau of Labor Statistics groups Aquaponics Technicians into the category Agriculture and Food Science Technicians. Employment outlooks for those fields, as well as the current and related fields of Environmental Engineering Technician and Electrician, are below.

National Bureau of Labor Statistics 2016 - 2026			
Position	2016	2026	2016 - 2026 %
Food Science Technicians	27,500	29,200	6%
Environmental Engineering Technicians	17,000	19,100	13%
Electricians	666,900	726,500	9%

State / Regional Data

Similar to national trends and occupation titles, an expertise in Aquaponics can lead to employment in a number of fields. Several occupation categories fall under this the broad category of Crop, Nursery, and Greenhouse Workers below, including soils technician, conservationist, natural resources technician, hydrologic technician, biological sciences technician, and, fisheries technician. South Dakota employers tend to label these positions differently than the national trends.

SD Bureau of Labor Statistics 2016 - 2026			
Position	2016	2026	2016 - 2026 %
Crop, Nursery, and Greenhouse Workers	1,818	1,853	.19%
Electricians	2,288	2,383	4.15%
Life, Physical, and Social Science Technicians	1,354	1,450	7.09%

Student Need

This program will provide students with an opportunity to enter an emerging industry that has many areas for growth, and training that meets industry need. The majority of graduates will enter employment as an entry-level aquaponics technician.

Industry Support

Western Dakota Tech has consulted with multiple industry representatives in the western South Dakota and surrounding region, and has received a very strong level of support. Industry leaders have indicated that there is imminent growth for this field with no training programs in South Dakota and very few training programs across the country.

POPULATION SERVED BY THE PROGRAM

This program is available to any applicant who successfully completes the Western Dakota Tech admissions requirements, including Dual Enrollment students. Western Dakota Tech does not discriminate in its educational programs on basis of race, color, creed, religion, age, sex, disability, national origin or ancestry. The program will draw its students from South Dakota and surrounding states, and the opportunities for employment will favor the same geographical area.

PROGRAM CAPACITY

Starting Semester	Delivery Format	Cohort Capacity
Fall 2019	Traditional Day	24

ENTRY AND EXIT POINTS

Entry point: Fall Semester 2019

Exit point: First graduating cohort in Spring 2021 with an A.A.S. degree in Environmental Engineering Technician – Aquaponics.

PROGRAM DUPLICATION

Western Dakota Tech is proposing this blended program option to meet regional industry needs for Aquaponics Technicians. There is currently no similar programs in South Dakota and the needs of industry in western South Dakota and the region are growing exponentially.

Montana – 0 degree programs; University of Montana has an aquaponics system set up at the dining hall as part of their green initiative.

Nebraska – 0 degree programs; University of Nebraska - Kearney project teaching middle school science teachers about aquaponics so they can build one in their middle school classrooms; University of Nebraska - Lincoln has a how-to build aquaponics project as part of their 4-H extension services.

North Dakota – 1 A.A.S. degree program at Dakota College at Bottineau

Wyoming – 0 programs

CIP CODE: 01.0308

WAGE FACTOR

National Wage Factor

National Bureau of Labor Statistics 2016 - 2026	2017 Median Pay
Position	
Food Science Technicians	$39,910
Environmental Engineering Technicians	$50,230
Electricians	$54,110

South Dakota Wage Factor

SD Bureau of Labor Statistics 2016 - 2026			
Position	25th %	Mean	75th %
Soil and Plant Scientists	$46,600	$57,897	$66,922
Electricians	$36,265	$45,951	$55,572
Life, Physical, and Social Science Technicians	$32,852	$44,013	$49,754

FACILITY / SPACE REQUIREMENTS

A minor facility change will be required for this blended program. The majority of academic coursework is currently established and part of already successful programs. A small portion of the current lab space for the Environmental Engineering Technician and Electrical Trades programs will be renovated to house varying aquaponics units.

PROJECTED BUDGET

Projected Expenses	Year 1	Year 2	Year 3
Salaries	55,435	55,435	55,435
Adjunct Instructor Expense	-	4,000	5,000
Benefits	16,815	17,000	17,200
Staff Travel	1,000	1,000	1,000
Instructional Materials and Software	5,000	1,000	1,000
Facility Changes – Materials & Labor	50,000	-	-
Equipment Purchases	50,000	50,000	-
Software/Books/Fees	3,000	2,000	2,000
	$ 181,250	**$ 130,435**	**$ 81,635**

CURRICULUM DESIGN

Western Dakota Tech designed a tentative curriculum after an extensive review of curriculum searches, academic review of required skills, and discussion with industry professionals. The curriculum is shown in Appendix A.

APPENDIX A – ENVIRONMENTAL ENGINEERING TECHNICIAN – AQUAPONICS CURRICULUM

ENVIRONMENTAL ENGINEERING TECHNICIAN - AQUAPONICS

Associate of Applied Science, 70 Credit Hours, 21-Month Program

The Environmental Engineering Technician - Aquaponics program is designed to prepare students for work in an exciting and growing field. Upon graduation, students will be able to seek outside employment with greenhouses as well as develop their own business in the aquaponics field. With the expanded interest in farm to table, there are increased opportunities to apply the skills learned in this program in a variety of settings.

Course	No.	Course Title	Credits
		General Education Requirements	
BIOL	101	BIOLOGY SURVEY I	3
BIOL	101L	BIOLOGY SURVEY I LAB	1
CHEM	106	CHEMISTRY SURVEY	3
CHEM	106L	CHEMISTRY SURVEY LAB	1
ECON	202	PRINCIPLES OF MACROECONOMICS *online*	3
ENGL	101	COMPOSITION* ***or***	3
ENGL	106	WORKPLACE COMMUNICATIONS I*	
MATH	102	COLLEGE ALGEBRA **	3
PSYC	103	HUMAN RELATIONS IN THE WORKPLACE	3
		Total	**20**
		Technical Requirements	
AG	108	AGRICULTURE INDUSTRY	3
AG	120	AGRONOMY & FORAGE/PASTURE MANAGEMENT	3
AQU	XXX	AQUAPONICS/INDOOR GROWING	3
AQU	XXX	HORTICULTURE	3
AQU	XXX	AQUACULTURE	3
AQU	XXX	AQUAPONICS DESIGN	3
BIOL	231	GENERAL MICROBIOLOGY	3
BIOL	2311	GENERAL MICROBIOLOGY LAB	1
BUS	233	BUSINESS ENTREPRENEURSHIP	3
CAD	150	ARCHITECTURAL PRINT READING	1
EET	102	INTRODUCTION TO ENVIRONMENTAL SCIENCES	4
EET	106	INTRODUCTORY FIELD METHODS	3
EET	202	WATER QUALITY	3
EET	222	INTRODUCTION TO WATERWATER TECHNOLOGIES	3
IEL	XXX	INTRODUCTION TO ELECTRICITY	4
IEL	123	INDUSTRIAL DATA COMMUNICATION	2
IEL	221	PROGRAMMABLE LOGIC CONTROLLERS	2
IEL	222	PROGRAMMABLE LOGIC CONTROLLERS LAB	3
		Total	**50**

*Prerequisite: Acceptable ACCUPLACER score or Basic Writing.
**Prerequisite: Acceptable ACCUPLACER score or Elementary Algebra.

Semester Breakdown

First Semester		CR
BIOL 101	Biology Survey I	3
BIOL 101L	Biology Survey I	1
EET 102	Introduction to Environmental Sciences	4
EET 106	Introductory Field Methods I	3
IEL XXX	Introduction to Electricity	4
MATH 102	College Algebra	3
	Total Credit Hours	**18**

Second Semester		CR
AQU XXX	Aquaponics/Indoor Growing	3
CAD 150	Architectural Print Reading	1
CHEM 106	Chemistry Survey	3
CHEM 106L	Chemistry Survey Lab	1
ENGL 101	Composition ***or***	
ENGL 106	Workplace Communications I	3
IEL 123	Industrial Data Communication	2
IEL 221	Programmable Logic Controllers	2
IEL 222	PLC Lab	3
	Total Credit Hours	**18**

Third Semester		CR
AG 108	Agriculture Industry	3
AG 120	Agronomy & Forage/Pasture Management	3
AQU XXX	Horticulture	3
BIOL 231	General Microbiology	3
BIOL 231L	General Microbiology Lab	1
EET 202	Water Quality	3
	Total Credit Hours	**16**

Fourth Semester		CR
AQU XXX	Aquaculture	3
AQU XXX	Aquaponics Design	3
BUS 233	Business Entrepreneurship	3
ECON 202	Principles of Macroeconomics ***online***	3
EET 222	Introduction to Wastewater Technologies	3
PSYC 103	Human Relations in the Workplace	3
	Total Credit Hours	**18**

A.A.S. Degree Course Sequence

First Semester		Credits
BIOL 101	**Biology Survey I** Study of the nature, diversity, and classification of life, ecology, cells and cell cycle, Mendelian and modern generics evolution and evolution theory. Intended for those not majoring in biology.	3
BIOL 101L	**Biology Survey I Lab** Laboratory experience that accompanies BIOL 101.	1
EET 102	**Introduction to Environmental Sciences** This course is a study of environmental interactions, including population and cultural problems, resource utilization, and impacts upon biotic systems. Material is presented to enable students to better understand and evaluate contemporary environmental problems and the application of science to their solutions.	4
EET 106	**Introduction to Field Methods** This course introduces the field techniques used in environmental site assessment, groundwater monitoring, and groundwater testing and includes soil and surface water sampling, groundwater sampling, water quality testing, and water level monitoring. Students will explore topics of geophysical surveying, water well installation, piezometer installation, and techniques to determine the direction of groundwater flow.	3
IEL XXX	**Introduction to Electricity**	4

	This course introduces the fundamentals of AC/DC circuits. It includes important concepts related to electrical safety, electrical quantities, ohm's law, series/parallel circuits, common electrical symbols and electrical system troubleshooting.	
MATH 102	**College Algebra** This course involves equations and inequalities; polynomial functions and graphs; exponents, radicals, binomial theorem, and zeros of polynomials; systems of equations; exponential, logarithmic, inverse functions, and applications and graphs. Other topics selected from sequences, series, and complex numbers will be covered.	3
	TOTAL CREDITS	**18**
Second Semester		**Credits**
AQU XXX	**Aquaponics / Indoor Growing** This course covers the study of the aquaponics cycle and how it can be adapted to different growing conditions. It includes the application of indoor, controlled climate systems to achieve optimal production results. Emphasis is given to the 3 living organisms that make up an aquaponics system, plants, aquatic organisms, and bacteria. Students will utilize existing aquaponics systems to grow crops and fish throughout the course.	3
CAD 150	**Architectural Print Reading** The course addresses the need to accurately read and interpret technical drawings. Students will become familiar with the various symbols, abbreviations and terms associated with a standard set of construction documents and learn to navigate these drawings to accurately determine design intent.	1
CHEM 106	**Chemistry Survey** A one-semester survey of chemistry. Not intended for those needing an extensive chemistry background. Introduction to the properties of matter, atomic structure, bonding, stoichiometry, kinetics, equilibrium, states of matter, solutions, and acid-base concepts.	3
CHEM 106L	**Chemistry Survey Lab** Laboratory designed to accompany CHEM 106.	1
ENGL 101 or ENGL 106	**Composition** This course instructs students in reading critically and writing clearly, correctly, and persuasively. Students will study principles of grammar, rhetoric, and logic in order to analyze and compose text effectively. This includes work on personal, expository, and research essays. or **Workplace Communications** This course presents the basic principles and forms of written communication in the workplace. Instruction leads students through the planning tasks, identifying audiences, and gathering information. More emphasis is on reports.	3
IEL 123	**Industrial Data Communications** This course will cover the operation and installation of data communication cabling systems. Students will be introduced to telephone	2

	and video system operation and cable installation. In addition, an introduction to networking is given with special emphasis on cabling and fiber optics. This course is designed to prepare the industrial electrician for the ever-increasing demand for installation of cabling systems in residential, commercial, and industrial projects.	
IEL 221	**Programmable Logic Controllers** This course introduces programmable logic controllers and the concepts and structure of programmable controllers and provides beginning programming skills. The student will have the basic knowledge to be able to do limited maintenance, programming, and installation of programmable controller systems in the industrial environment. The student will also have the background for more advanced training in programmable control.	3
IEL 222	**Programmable Logic Controllers Lab** This course will give the student hands-on experience in programming programmable controllers. The theory learned in previous coursework will be put into practice in a laboratory environment that includes simulated industrial applications. Programmable control is an area of ever-increasing industrial importance today.	3
	TOTAL CREDITS	**18**
Third Semester		**Credits**
AG 108	**Agriculture Industry** Overview of world agriculture, nature of the industry, resource conservation, and the American agricultural system, including production, distribution, and marketing.	3
AG 120	**Agronomy & Forage / Pasture Management** Principles and practices in the development, production, and management of field crops, including plant breeding, plant diseases, soils, insect control, and weed control. Study of the production and management of forage crops and pastures including establishment, fertilization, weed control, grazing systems, hay, seed production, and harvesting.	3
AQU XXX	**Horticulture** This course introduces basic plant science to growing techniques and decision making relating to light, water, temperature, and soil-less growing. Introductory plant care, propagation and identification for a wide variety food crop production methods. Students will utilize existing aquaponics systems to grow crops and fish throughout the course.	3
BIOL 231	**General Microbiology** Principles of basic and applied microbiology.	3
BIOL 231L	**General Microbiology Lab** Laboratory experience that accompanies BIOL 231.	1
EET 202	**Water Quality** Chemical and physical factors involved in evaluating water quality are examined with emphasis on water quality deterioration from landfills, underground storage tanks, and hazardous waste. Sampling techniques of groundwater, soil, surface water, quality assurance, quality control, and	3

	data processing techniques are included. Field exercises to acquire water quality data and to service data gathering equipment will be conducted. Safety procedures are stressed.	
	TOTAL CREDITS	**16**
Fourth Semester		**Credits**
AQU XXX	**Aquaculture** This course introduces principles underlying aquatic productivity and management. The concepts covered include species selection, genetics, nutrition and health, reproduction, and creating optimal production environments. Students will utilize existing aquaponics systems to grow crops and fish throughout the course.	3
AQU XXX	**Aquaponics Design** This course introduces sustainability and how environmental, design, and engineering concepts factor into efficient system design. Throughout this course students will be researching and developing a system of their own design	3
BUS 233	**Business Entrepreneurship** This course familiarizes students with the concept of entrepreneurship spirit while providing them with an understanding of the skills necessary to manage a small business. Students develop a business plan and oral presentation for a new business.	3
ECON 202	**Principles of Macroeconomics** The course is designed to provide students with a better understanding of macroeconomic issues that affect their daily lives. Economics is about making choices, i.e., how we use our limited "means" to satisfy our unlimited wants. Macroeconomics considers how the economy as a whole makes those decisions, both domestically and on the global scene.	3
EET 222	**Introduction to Wastewater Technologies** This course provides an introduction to the causes of water pollution, the reasons for treating polluted waters, and the fundamentals of wastewater treatment. Students will study the basic principles of treatment plant operation and the processes commonly used in pollution control facilities. Investigation of terms, mathematics, and problem-solving techniques commonly used by wastewater treatment personnel will be included.	3
PSYC 103	**Human Relations in the Workplace** Success in the world of work requires not only the ability to perform according to the requirements of the position, but also the ability to adjust and get along with others. The purpose of this course is to help students grasp the importance of human relations skills in both their personal and career lives. It will introduce students to the skills necessary to create and maintain positive relationships and interactions in the workplace.	3
	TOTAL CREDITS	**18**
	TOTAL PROGRAM CREDITS	**70**

APPENDIX B – LETTERS OF SUPPORT

GenPro Energy Solution, LLC

Heliospectra AB

Hach Company

GENPRO
ENERGY SOLUTIONS

Dr. Ann Bolman
Western Dakota Tech

800 Mickelson Dr.
Rapid City, SD 57703

February 19, 2019

Dear President Bolman,

GenPro Energy Solutions is excited to collaborate with Western Dakota Tech on your aquaponics program. Our organization specializes in energy efficiency and renewable energy and have a great interest in seeing WDTI further their commitment to sustainable technology, and also begin to develop curriculum and programs that will produce more leaders in sustainable energy, water, and food technologies. We have the privilege of employing Joseph Cattin, a team member of the aquaponics/EAT SD project. We also look forward to hiring back Tyler Anderson full-time who worked for GenPro over the summer. We are happy to partner with Western Dakota Tech to participate in the project and bring our expertise to the table.

GenPro will provide the following to the aquaponics program at Western Dakota Tech:

- Serving on the project's advisory committee
- Providing PV solar modules and other required materials that GenPro normally carries at an educational discount for the purpose of creating a complete "off-grid" system
- Providing technical expertise as needed

The project you are undertaking is a worthy endeavor, and we are excited to work as partners. Please feel free to contact me if there are other ways we can assist.

Sincerely,

Lee J. DeLange
COO, GenPro Energy Solutions, LLC

heliospectra

Dr. Ann Bolman
Western Dakota Tech
800 Mickelson Dr.
Rapid City, SD 57703

February 19, 2019

Dear President Bolman,

Heliospectra AB is honored to collaborate with Western Dakota Technical College on your Environmental Engineering--Aquaponics program. Our organization values our work and provides LED lighting and software control solutions to the horticulture industry with customer installations across six continents We are delighted to partner with Western Dakota Tech on the EAT SD project and bring our plant science and lighting expertise to the table. We also view the aquaponics collaboration as vital to the stability of the United States horticulture industry as the electrical trades hold a critical role in the facilities design and cultivation techniques that will ensure the future of food and agriculture for our country.

Heliospectra AB will provide the following contributions to the aquaponics program at Western Dakota Tech:

- Serving as a member of the project's advisory committee.
- Providing expertise throughout the project, including design, planning, building, energy use monitoring, and data analysis.
- Contributing research and knowledge base materials, branded team apparel, and potential financial donations for student team participation in national academic, science, and horticultural conference events.
- Hosting introductions with our global aquaponics customers so students can discuss project performance and compare results with commercial business leaders and advisors.
- Providing firmware upgrades and complimentary consulting hours for evaluation and development of specific lighting spectra strategies to improve overall crop and aquaponics systems performance.
- Hosting online career development sessions with our controlled environment experts, plant scientists, lighting designers, and software development team so that students understand the facility, system, and electrical/HVAC components required for horticultural growing environments.

The program you are undertaking is a worthy endeavor, and we are privileged to support you as partners. Please feel free to contact me if there are additional ways we can assist.

Sincerely,
Ali Ahmadian, CEO
Heliospectra AB

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Dr. Ann Bolman
Western Dakota Tech
800 Mickelson Dr.
Rapid City, SD 57703

02/24/2019

Dear President Bolman,

Hach Company is excited to collaborate with Western Dakota Tech on your aquaponics program. Our mission is to "make water analysis better—faster, simpler, greener and more informative—via unsurpassed customer partnerships, the most knowledgeable experts, and reliable, easy-touse products." Hach Company has partnered with various non-profit organizations including Water for People, Water Mission, The United Way, The Boys and Girls Club, and the Matthew House, and we hold our Annual Walk for Water to help fund safe water projects in the communities of Andot, Cambodia, and Santa Clotilde, Peru. We are happy to partner with Western Dakota Tech to participate in the project and bring our expertise to the table.

Hach Company will provide the following to the aquaponics project at Western Dakota Tech:

- Hach will provide a 20% educational discount on all instrumentation and related products specific to Western Dakota Tech's aquaponics program. Instrumentation includes but is not limited to:
  - HQ40D meter with associated probes
  - DR3900 Spectrophotometer
  - DRB Reactor Block
  - sc1000 Controller
  - DPDIPI pH Sensor
  - LDO Model 2 Sensor
  - D3725E2T Conductivity Sensor
- Hach will provide all educational information around parameters requested, including step by step instructions for methods.
  - Hach will offer a full technical support team at no additional charge to help answer all questions/concerns and will continue support after install — all members of the project can utilize technical support at any time.
  - The Hach Company Account Manager, Samantha Straw, works specifically with municipalities and educational institutions throughout South Dakota. She can be utilized by all members included in the aquaponics program.
  - Samantha has worked with many customers on several different applications and projects for over 3 years.
  - Samantha is a valuable resource for all lab and process needs, as well as, helping match the right solution to the application.

HACH™

Be Right

HACH | 5600 Lindbergh Drive I PO Box 389 | Loveland, Colorado 80539 | P970.669.3050 1 F970.669.2932 1 hach.com

The project you are undertaking is a worthy endeavor, and we are excited to work as partners. Please feel free to contact me if there are other ways we can assist.

Sincerely,

Samantha Straw
Hach Account Manager

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